This listing of the claims will replace all prior versions and listings of the claims in the application.

Listing of the Claims:

1. (Original) A radiation detector for a imaging apparatus, said radiation detector comprising:

a scintillator which converts one form of radiation into light; and

an optical routing matrix adjacent to the scintillator to receive light along a plurality of input paths, the optical routing matrix having an output light path and a plurality of optical switches which are electrically operable to selectively direct light from each of the plurality of input paths into the output light path.

2. (Original) The radiation detector as recited in claim 1 further comprising an optical conduit coupled to the optical routing matrix to receive light traveling along the output light path.

3. (Original) The radiation detector as recited in claim 1 wherein the optical routing matrix comprises:

a linear array of microelectromechanical mirrors each of which is independently movable to selectively direct light into the output light path; and

a two-dimensional array of microelectromechanical mirrors, each of which is independently movable to selectively direct light from a different one of the input paths to the linear array of microelectromechanical mirrors.

4. (Original) The radiation detector as recited in claim 1 wherein each of the plurality of optical switches is selected from a group consisting of optical gating elements and microelectromechanical mirrors.

5. (Original) The radiation detector as recited in claim 1 wherein the scintillator converts x-rays into light.

6. (Currently Amended) An radiation detector for an imaging apparatus, said radiation detector comprising:

a scintillator which converts invisible radiation into light;

a first array of microphotonic switching devices adjacent to the scintillator wherein each one of the microphotonic switching devices receives light from a different section of the scintillator; and

an optical conduit coupled to the ~~two-dimensional~~ first array of microphotonic switching devices;

wherein each of the microphotonic switching devices is independently operable to selectively direct light from the respective section of the scintillator to the optical conduit.

7. (Original) The radiation detector as recited in claim 6 wherein the microphotonic switching devices comprise microelectromechanical switching elements.

8. (Original) The radiation detector as recited in claim 6 wherein the microphotonic switching devices comprise microelectromechanical mirrors.

9. (Original) The radiation detector as recited in claim 6 wherein the first array of microphotonic switching devices comprises:

a semiconductor substrate;

a plurality of electrically steerable mirrors;

a plurality of springs coupling the plurality of electrically steerable mirrors to the semiconductor substrate; and

an plurality of actuator electrodes on the semiconductor substrate, each of which is associated with a given steerable mirror for receiving a drive voltages which causes the given steerable mirror to move with respect to the semiconductor substrate.

10. (Original) The radiation detector as recited in claim 9 further comprising a sensor for detecting an amount that each of the plurality of electrically steerable mirrors moves with respect to the semiconductor substrate.

11. (Original) The radiation detector as recited in claim 6 wherein the microphotonic switching devices comprise light gating elements.

12. (Original) The radiation detector as recited in claim 11 wherein the light gating elements comprise liquid crystal material.

13. (Original) The radiation detector as recited in claim 6 wherein the first array comprises a two-dimensional array of microphotonic switching devices arranged in a plurality of rows.

14. (Original) The radiation detector as recited in claim 13 further comprising a second array of microphotonic switching devices, each being independently operable to selectively direct light from microphotonic switching devices in a row of the first array to the optical conduit.

15. (Original) The radiation detector as recited in claim 6 further comprising a semiconductor device connected to the optical conduit to convert the light into an electrical signal.

16. (Original) The radiation detector as recited in claim 6 wherein the scintillator converts x-rays into light.

17. (Original) An radiation detector for an imaging apparatus, said radiation detector comprising:

a scintillator which converts invisible radiation into light;

an optical conduit; and

an optical routing matrix coupled to the scintillator and the optical conduit and defining a plurality of detection sites in the scintillator, said optical routing matrix having a plurality of optical switches, wherein each one is selectively operable to control flow of light from one of the detection sites to the optical conduit.

18. (Original) The radiation detector as recited in claim 17 wherein the plurality of optical switches comprise microelectromechanical switching elements.

19. (Original) The radiation detector as recited in claim 17 wherein the plurality of optical switches comprise microelectromechanical mirrors.

20. (Original) The radiation detector as recited in claim 17 wherein the plurality of optical switches comprise light gating elements.

21. (Original) The radiation detector as recited in claim 20 wherein the light gating elements comprise liquid crystal material.

22. (Original) The radiation detector as recited in claim 17 wherein the plurality of the plurality of optical switches are arranged in a two-dimensional array having a plurality of rows.

23. (Original) The radiation detector as recited in claim 22 wherein the optical routing matrix further comprises a linear array of optical switching elements, each of which is independently operable to selectively direct light from the optical switches in a row of the two-dimensional array to the optical conduit.

24. (Original) The radiation detector as recited in claim 17 wherein the optical routing matrix comprises:

a linear array of microelectromechanical mirrors each of which is independently movable to selectively direct light into the optical conduit; and

a two-dimensional array of microelectromechanical mirrors, each of which is independently movable to selectively direct light from a different region of the scintillator toward the linear array of microelectromechanical mirrors.

25. (Original) The radiation detector as recited in claim 17 wherein the optical switching matrix comprises:

a semiconductor substrate;

a plurality of steerable mirrors;

a plurality of springs coupling the plurality of steerable mirrors to the semiconductor substrate; and

an plurality of actuator electrodes on the semiconductor substrate, each of which is associated with a given steerable mirror for receiving a drive voltages which causes the given steerable mirror to move with respect to the semiconductor substrate.

26. (Original) The radiation detector as recited in claim 25 further comprising a sensor for detecting an amount that each of the plurality of steerable mirrors moves with respect to the semiconductor substrate.

27. (Original) The radiation detector as recited in claim 17 wherein the scintillator converts x-rays into light.